

TRAITÉ DE COOPÉRATION EN MATIÈRE DE BREVETS

PCT

RAPPORT PRÉLIMINAIRE INTERNATIONAL SUR LA BREVETABILITÉ

(chapitre I du Traité de coopération en matière de brevets)

(règle 44bis du PCT)

Référence du dossier du déposant ou du mandataire R9597WO	POUR SUITE À DONNER Voir le point 4 ci-dessous	
Demande internationale no. PCT/FR2004/003378	Date du dépôt international (<i>jour/mois/année</i>) 23 December 2004 (23.12.2004)	Date de priorité (<i>jour/mois/année</i>) 30 January 2004 (30.01.2004)
Classification internationale des brevets (8 ^e édition, sauf indication d'une #dition ant#rieure) Voir les informations pertinentes dans le formulaire PCT/ISA/237		
Déposant WAVECOM		

1. Le présent rapport préliminaire international sur la brevetabilité (chapitre I) est établi par le Bureau international au nom de l'administration chargée de la recherche internationale selon la règle 44bis.1.a).

2. Ce RAPPORT comprend un total de 8 feuilles, y compris la présente feuille de couverture.

Dans les feuilles jointes, toute référence à l'opinion écrite de l'administration chargée de la recherche internationale doit être entendue, à la place, comme une référence au rapport préliminaire international sur la brevetabilité (chapitre I).

3. Le présent rapport contient des indications relatives aux points suivants :

- | | | |
|-------------------------------------|---------------|---|
| <input checked="" type="checkbox"/> | Cadre n° I | Base de l'opinion |
| <input type="checkbox"/> | Cadre n° II | Priorité |
| <input type="checkbox"/> | Cadre n° III | Absence de formulation d'opinion quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle |
| <input type="checkbox"/> | Cadre n° IV | Absence d'unité de l'invention |
| <input checked="" type="checkbox"/> | Cadre n° V | Déclaration motivée selon l'article 35.2) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration |
| <input type="checkbox"/> | Cadre n° VI | Certains documents cités |
| <input type="checkbox"/> | Cadre n° VII | Certaines irrégularités relevées dans la demande internationale |
| <input type="checkbox"/> | Cadre n° VIII | Certaines observations relatives à la demande internationale |

4. Le Bureau international communiquera le présent rapport aux offices désignés conformément aux règles 44bis.3.c) et 93bis.1 mais pas avant l'expiration du délai de 30 mois à compter de la date de priorité (règle 44bis.2), sauf si le déposant a présenté une requête expresse à cet égard en vertu de l'article 23.2).

	Date d'établissement du présent rapport 18 October 2006 (18.10.2006)
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PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing
(day/month/year)

See form PCT/ISA/210

Applicant's or agent's file reference

R9597WO

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/FR2004/003378

International filing date (day/month/year)

23.12.2004

Priority date (day/month/year)

30.01.2004

International Patent Classification (IPC) or both national classification and IPC

H04L27/34, H04L25/06

Applicant

WAVECOM

1. This opinion contains indications relating to the following items:

☒

Box No. I

Basis of the opinion

☐

Box No. II

Priority

☐

Box No. III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐

Box No. IV

Lack of unity of invention

☒

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☐

Box No. VI

Certain documents cited

☐

Box No. VII

Certain defects in the international application

☐

Box No. VIII

Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP

Authorized officer

Facsimile No.

Telephone No.

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Box No. 1

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>1-25</u>	YES
	Claims _____	NO
Inventive step (IS)	Claims <u>1-25</u>	YES
	Claims _____	NO
Industrial applicability (IA)	Claims <u>1-25</u>	YES
	Claims _____	NO

2. Citations and explanations:

Reference is made to the following documents:

- D1: US 2002/131515 A1 (RODRIGUEZ, MICHAEL J.), 19
September 2002 (2002-09-19)
- D2: EP-A-0 594 505 (TELEDIFFUSION FSE; FRANCE
TELECOM (FR)), 27 April 1994 (1994-04-27)
- D3: WO 99/56442 A (ERICSSON, INC.), 4 November
1999 (1999-11-04)
- D4: FR-A-2 836 764 (WAVECOM, SA), 5 September
2003 (2003-09-05)
- D5: US-A-6 078 626 (RAMESH, RAJARAM), 20 June
2000 (2000-06-20)
- D6: US-A-4 493 082 (FOSTER, ALUN E. ET AL.), 8
January 1985 (1985-01-08)

1. The subject matter of claim 1 involves an inventive
step (PCT Article 33(3)) for the following
reasons:

1.1 Document D1 describes:

a method for receiving

- a modulated signal based on a main
constellation (16-QAM), called the main
signal, and

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- at least one modulated signal based on a secondary constellation (QPSK), called a secondary signal, the said secondary constellation being included in the said main constellation,

the said method comprising

- a step for demodulating the said main signal, thus delivering, for each of the elements of the said main constellation, a piece of reliability information related to the reception of the said element, called the main reliability information.

1.2 Claim 1 adds to this an additional step

- for determining, for at least one element of the said secondary constellation, at least one piece of reliability information related to the reception of the said element, called the secondary reliability information, from at least one of the said pieces of main reliability information

in order to demodulate the said secondary signal. Thus, the method of claim 1 describes a method for determining a piece of secondary information from the demodulation of the signal based on a main constellation.

The problem may be considered to be to simplify the demodulation of the secondary signal in a demodulator adapted to the main constellation.

1.3 In order to demodulate a secondary signal, document

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D1 proposes to adapt the corresponding demodulation step to the secondary constellation, i.e. to demodulate the signal received based on the secondary constellation. Thus, document D1 leads in a different direction from the solution corresponding to the invention.

Consequently, the subject matter of claim 1 involves an inventive step.

- 1.4 Document D2 applies to a modulation wherein a piece of main information defines a quadrant of a 16-QAM constellation and wherein the points in the quadrant are selected by a piece of secondary information. In order to demodulate, the main information is first decoded on the basis of flexible information, after which the secondary information is determined.

The method in this document cannot be modified so that the constellation corresponding to the secondary information is included in the constellation corresponding to the main information.

D3 describes a method for demodulating a signal having two different constellations. The so-called main constellation contains the so-called secondary constellation. The estimation of the channel is always performed with the help of a synchronisation signal based on the secondary constellation and an information signal is demodulated based on either one of the two constellations.

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D4 provides a few details regarding the generation of flexible information and MAP decoding. This document does not deal with multiple constellations.

D5 describes a method for demodulating a received signal that has been modulated based on a 16-QAM constellation by separating the constellation into two subsets. But this document does not disclose the use of the reliability information of a main constellation to determine the reliability information of a secondary constellation.

D6 applies to a modulation wherein a piece of main information defines a subset of a constellation and wherein the points of the subset are selected by a piece of secondary information. The subset is determined by decoding the main information; the secondary information is then determined by deciding on the symbol of this subset.

The method in this document cannot be modified so that the constellation corresponding to the secondary information is included in the constellation corresponding to the main information.

- 2 The features of the receiver in claim 17 are defined using the same wording as the steps of method claim 1. Consequently, claim 17 satisfies the requirements of PCT Article 33(2) and (3) for the same reasons as claim 1.

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- 3 Claims 2-16 depend on claim 1. and claims 18-24
depend on claim 17. Therefore, these claims also
satisfy, as such, the requirements of PCT Article
33(2) and (3).